E-Commerce Product Range Analysis

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Aim: Identify promising products and products duo-bundles to boost profit and customer satisfaction

General Conclusions

- There is an increasing trend for the number of purchases the months before christmas

- The most orders have only few different items

- Purchases with smaller prices are prefered by the customers

- The keyword 'set' is leading, so sets of products attracts customers

- 11 promising and popular keywords:
'set', 'pink', 'heart', 'blue', 'vintage', 'red', 'bag', 'christmas', 'white', 'box', 'design'

- Having multiple popular keywords in an item description doesn't attract more customers

- Two similar products that differ in design create a promising set of products

- Set of products are promising over the whole time of the year

Increasing trend for the number of purchases the months before christmas

Distribution of the Purchases between 2018-11-29 and 2019-12-07
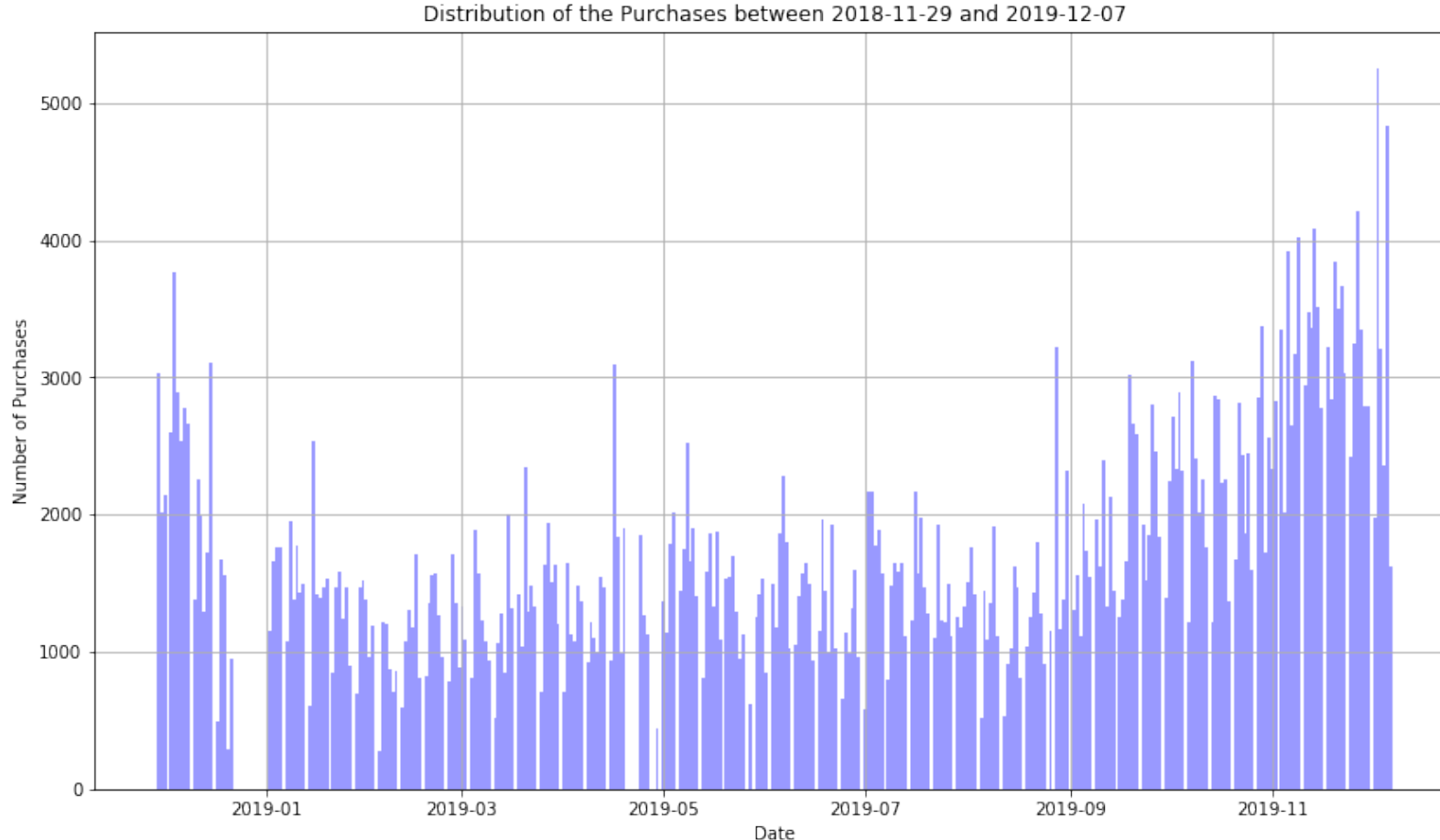
- At the beginning we see a decreasing trend followed by a data lack from December 22th until January 1st

- From January until September 2019 there is overall a constant level of purchases

- From September until December 2019 there is an increasing trend

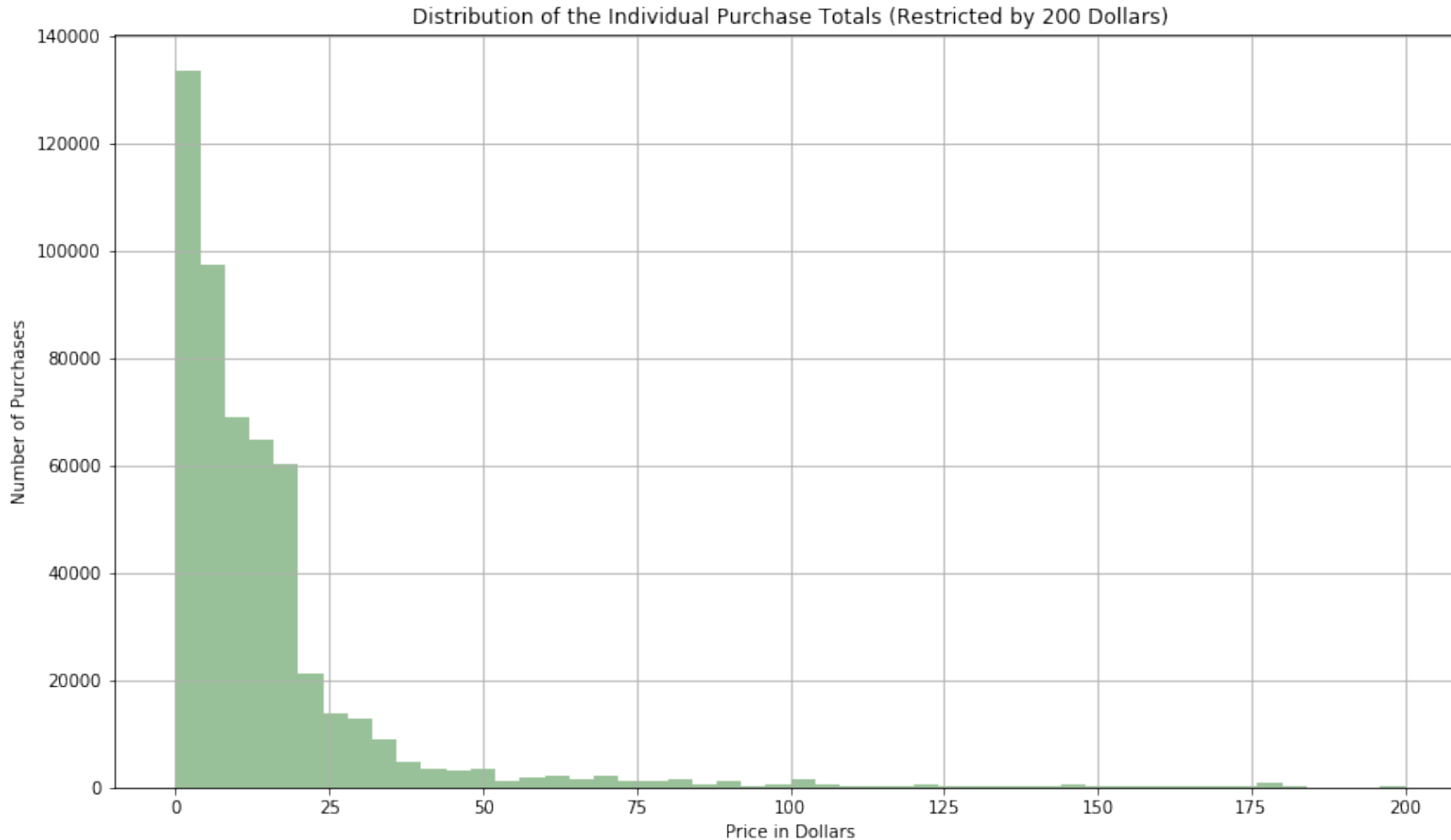- For every single Sunday in the given time period there are no transactions

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The most orders have only few different items

Distribution of the Number of Unique Items per Order
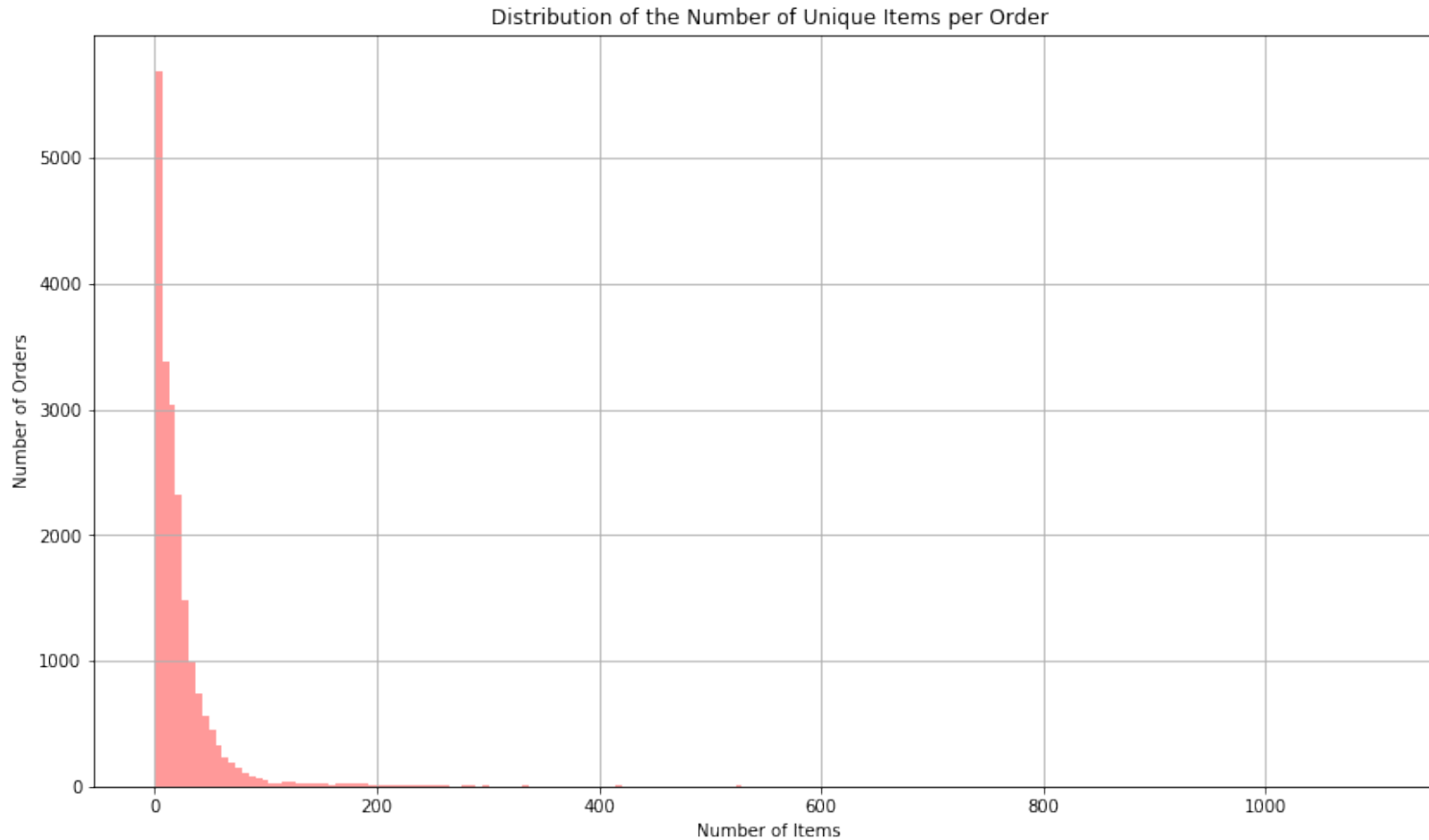
- The number of orders having certain number of items decreases exponentially with increasing number of items

- Orders have between 1 and 1110 items

- Since we have few orders with many hundreds of items, an order with 1110 items is reasonable

- The most orders have only few different items

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# Purchases with smaller prices are prefered by the customers

Distribution of the Individual Purchase Totals (Restricted by 200 Dollars)

- The prices per purchase show a distribution that decreases exponentially for increasing prices

- The most purchases have prices in a lower level; there are only few above 50 Dollars

- The most expensive purchase costs 4505 Dollars

- Orders with smaller total prices are preferred by the customers

'set' as leading keyword; set of products attracts customers

Top 15 Keywords from the Item Descriptions
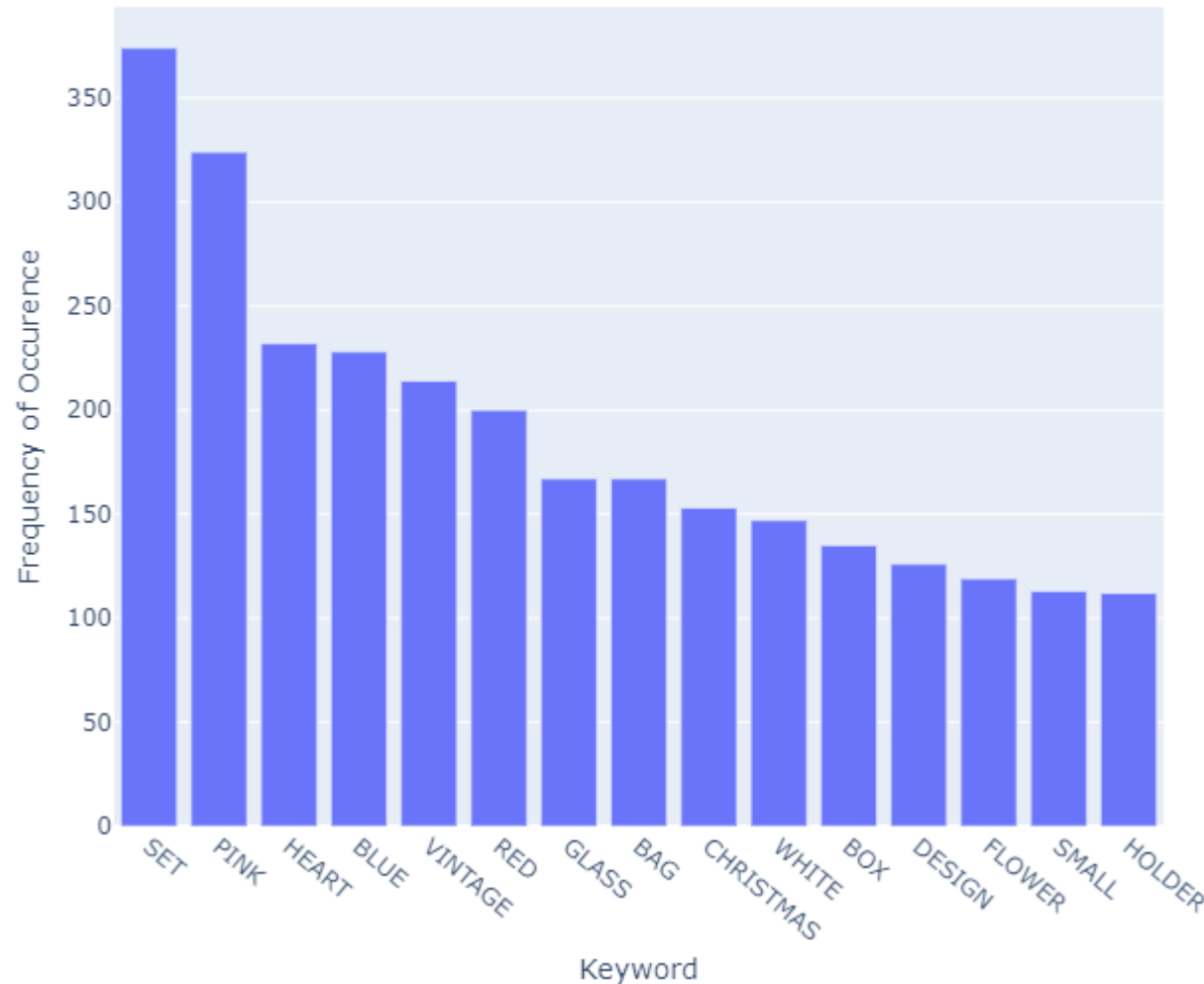
- 4 of the top 15 are colors (pink, blue, red, white)

- 'set' has the most occurences; a set of multiple items being sold as one item seems to attract customers

- 'christmas', 'design' and 'vintage' are more generell words from the top 15

- From all keywords existing from the descriptions 40% of them have been used only one time

- Such rare descriptions more often contain shortened words and grammatical mistakes

Source: Transactions data

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Having multiple popular keywords in a description doesn't attract more customers

Share of Items having one/multiple Keywords (from the Top 15 Keywords)

- 1 Keyword
- 2 Keywords
- 3 Keywords
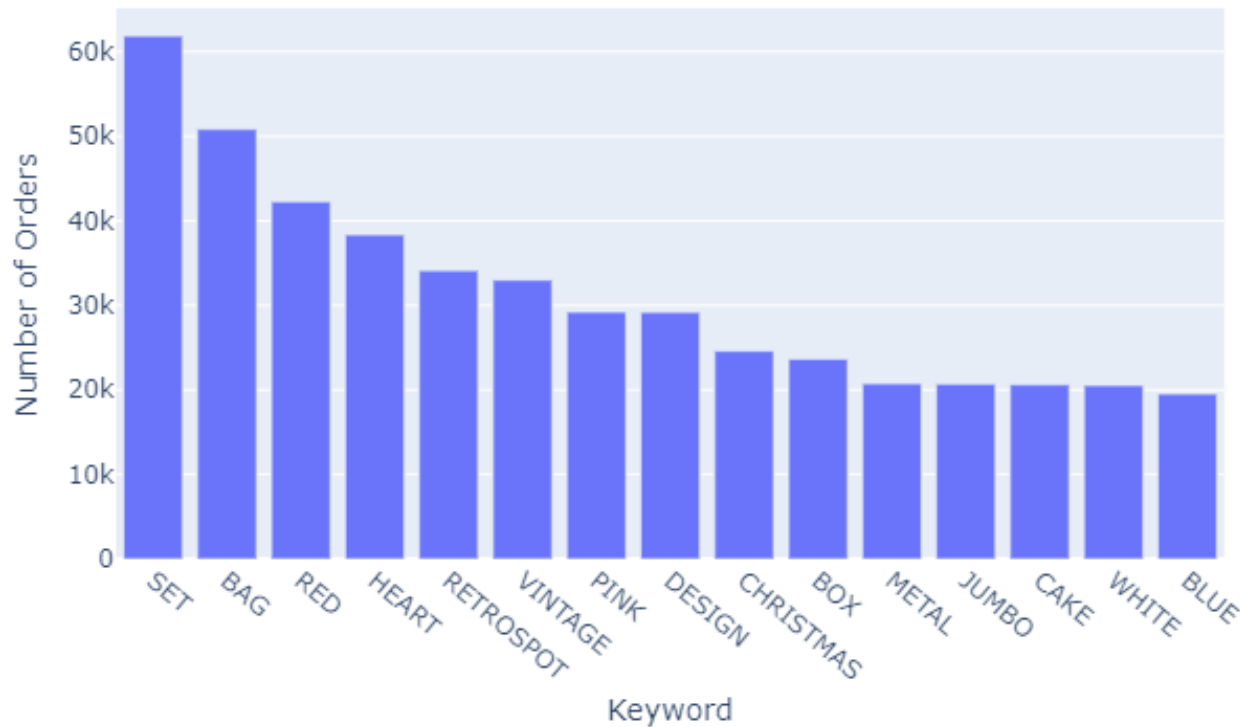- 4 Keywords

24%

3.39%

0.235%

72.4%
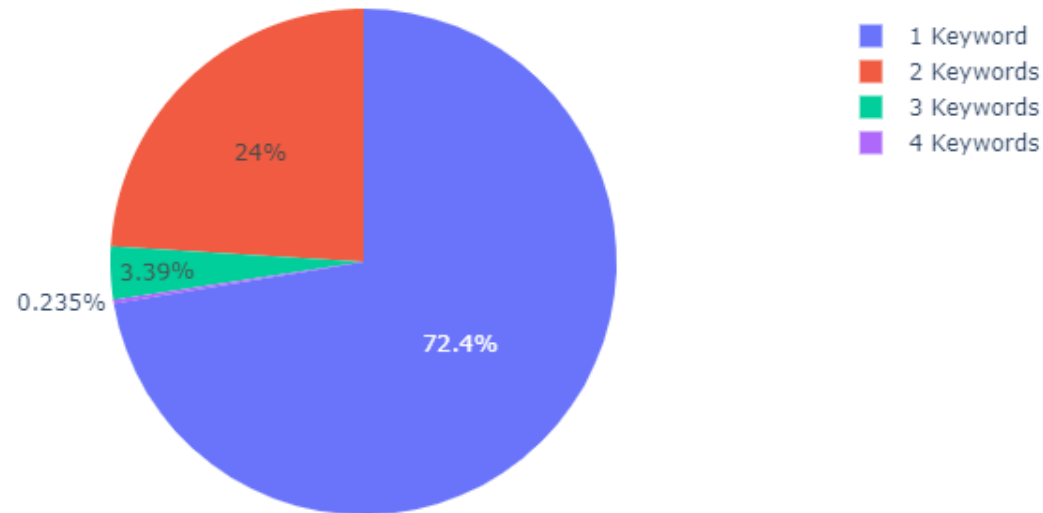
- From all items having at least one of the top 15 keywords, less than 30% of them have two or more of these keywords

- The most of these Items have exactly one of the top 15 keywords (72.4%)

- I conclude that customers don't get more attracted by items whose item descriptions have many of the top 15 keywords

Source: Transactions data

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Both top 15 lists have 11 keywords in common that stand for promising products

Top 15 Keywords by the Number of Orders

- Both top 15 lists have 11 keywords in common: 'SET', 'PINK', 'HEART', 'BLUE', 'VINTAGE', 'RED', 'BAG', 'CHRISTMAS', 'WHITE', 'BOX', 'DESIGN'

- Items with these 11 keywords in their descriptions are in generell promising products to boost profit

- 'set' is in both top 15 lists at place 1: Set of products are also promising

- Both top 15 lists have the same 4 colors. If the color of a product is noticeable, it's promising to mention its color (or design) in the description

Source: Transactions data

Analysis of Bundles with Two Products:

Two similar products that differ in design create a promising set of products

- Promising bundles have popular keywords in their descriptions

- Promising product bundles consisting of two products should consist of similar products that differ in design (e.g. color) from each other,
  example: 'JUMBO BAG RED RETROSPOT' and 'JUMBO BAG STRAWBERRY'

- A description of a product's design doesn't necessarily need the word 'design' itself (even though it's in the top 15 keywords)

- Regarding the popular keywords in product bundles I conclude that bags are promising products for online shops and they fit well in duo product bundles; of course, in generell this recommendation depends on the type of the online shop

Set of products are promising over the whole time of the year
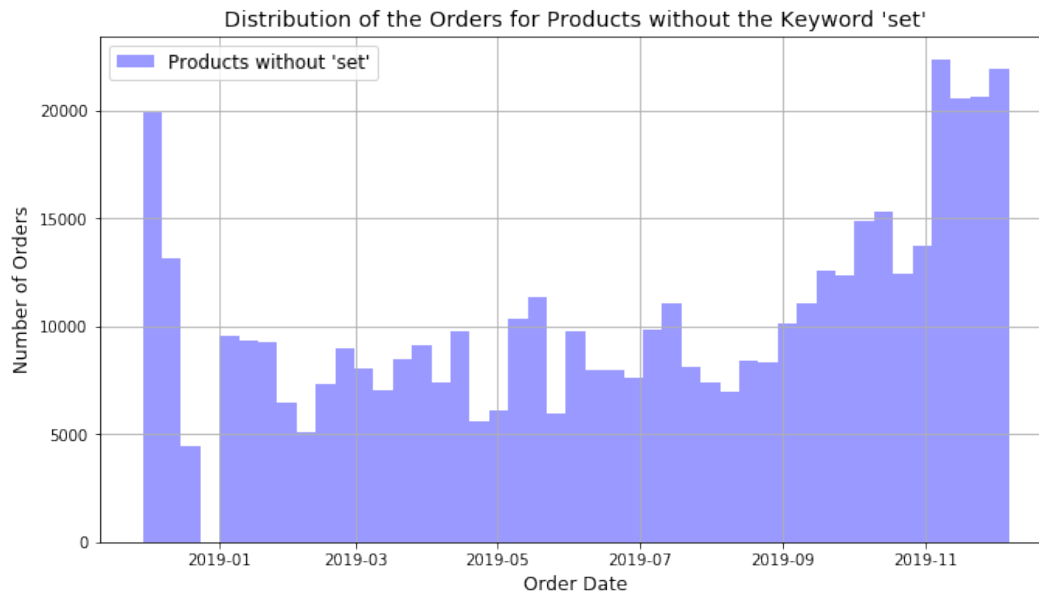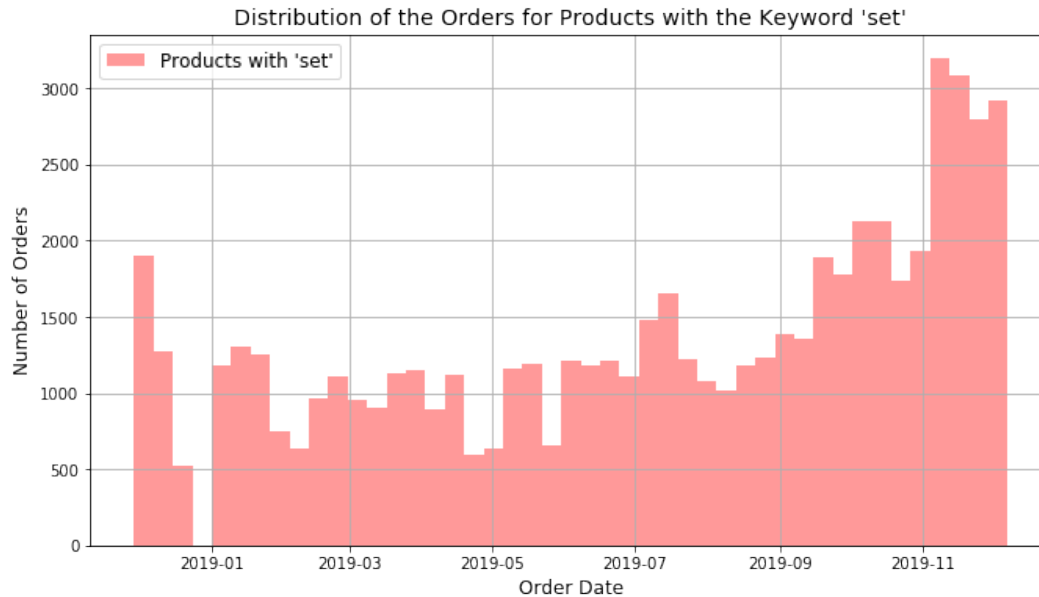
- The histograms show the distributions of purchases over the year for two different groups of products: Products with and without the word 'set' in their descriptions (remember: 'set' is number one in both top 15 lists)

- There is a difference right at the beginning of the time period: The products without 'set' have more orders around christmas time

- That's why both distributions differ statistically

- Still set of products are not more promising around christmas time

- Set of products are promising over the whole time of the year

Recommendations for promising products to boost profit and customer satisfaction

- The keyword 'christmas' is popular and there are more purchases around christmas. For these reasons I recommend to use the word 'christmas' more frequently in item descriptions (if it makes sense for these items) the weeks before christmas

- If the color of a product is noticeable, it's more promising to mention its color (or design) in the description

- Promising product bundles consisting of two products should consist of similar products that differ in design (e.g. color) from each other,
example: 'JUMBO BAG RED RETROSPOT' and 'JUMBO BAG STRAWBERRY'

- If bags fit to the concept of the online store, then bags are promising products; as single product and as a part of a set of two products.